

AMENDMENTS TO THE CLAIMS

Claim 1 (Canceled)

Claim 2 (Currently Amended) A laser welding method, comprising:
varying a waveform and a frequency of a laser output in a controlled manner so as to prevent occurrence of weld defects;
detecting a time change in light emission strength of a plasma or a plume generated from a laser welded portion;
analyzing frequency characteristics of the light emission to obtain an amplitude of a frequency component which is ~~the~~ a same variation frequency of the laser output; and
setting a laser output variation condition so that the amplitude of the frequency component becomes a maximum.

Claim 3 (Currently Amended) A laser welding method, comprising:
varying a waveform and a frequency of a laser output in a controlled manner so as to prevent occurrence of weld defects;
detecting a time change in ~~the~~ light emission strength of a plasma or a plume generated from a laser welded portion;
setting an arbitrary threshold value to the time change in the light emission strength of the plasma or the plume; and
setting a laser output variation condition so that a sum of time at which the light emission strength becomes the threshold value or less ~~becomes~~ is a minimum.

Claim 4 (Currently Amended) The laser welding method according to claim 3, ~~wherein~~ further comprising setting the laser output variation condition so that the sum of the time at which the light emission strength becomes the threshold value or less is set ~~for a longer time than 2 ms to a range between 2ms to 12ms.~~

Claim 5 (Currently Amended) The laser welding method according to claim 2, further comprising:

setting an arbitrary threshold value to the time change in the light emission strength of the plasma or the plume, and

setting the laser output variation condition so that a sum of time at which the light emission strength becomes the threshold value or less ~~becomes~~ is a minimum.

Claim 6 (Currently Amended) The laser welding method according to claim 5, ~~wherein~~ further comprising setting the laser output variation condition so that the sum of the time at which the light emission strength becomes the threshold value or less is set ~~for a longer time than 2 ms~~ to a range between 2ms to 12ms.

Claim 7 (New) A laser welding method, comprising:

varying a waveform and a frequency of a laser output in a controlled manner so as to prevent occurrence of weld defects;

detecting a time change in light emission strength of a plasma or a plume generated from a laser welded portion;

setting an arbitrary threshold value to the time change in the light emission strength of the plasma or the plume;

analyzing frequency characteristics of the light emission to obtain an amplitude of a frequency component which is a same variation frequency of the laser output; and

setting a first laser output variation condition so that the amplitude of the frequency component becomes a maximum and setting a second laser output variation condition so that a sum of time at which the light emission strength becomes the threshold value or less is a minimum.

Claim 8 (New) The laser welding method according to claim 3, further comprising:

determining the time change in light emission strength of the plasma or the plume with respect to a variation in the laser output.